REMARKS

Claims 14-15 and 17-29 are pending in this application. Claim 16 has been canceled and Claim 17 has been amended to depend from Claim 14. Claim 14 is the only independent claim.

Obviousness-type Double Patenting Rejection

Claims 14-29 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-13 of US Patent 6,479,352 (Blanchard) in view of US Patent 4,671,851 (Beyer et al.). The accompanying Terminal Disclaimer is believed to render this rejection moot. Reconsideration and withdrawal of the rejection are therefore requested.

Section 103(a) Rejection

Claims 14-29 were also rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,452,230 (Boden) in view of US Patent 6,608,350 (Kinzer). This rejection is hereby respectfully traversed and reconsideration is requested.

Independent Claim 14 is directed to a method of forming a power MOSFET comprising the steps of providing a substrate of a first conductivity type, depositing an epitaxial layer on the substrate, the epitaxial layer having a first conductivity type, forming first and second body regions in the epitaxial layer to define a drift region therebetween, the body regions having a second conductivity type, forming first and second source regions of the first conductivity type in the first and second body regions, respectively, forming a plurality of trenches in the drift region of the epitaxial layer, *epitaxially depositing in the trenches a material having a dopant of the second conductivity type*, the trenches extending toward the substrate from the first and second body regions and diffusing at least a portion of the dopant from said trenches into portions of the epitaxial layer adjacent the trenches.

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In Kinzer, layer 4 is a p-type layer that is present on the sides of the parallel grooves or trenches 3, but outside of the grooves or trenches. Column 2, line 26 of Kinzer recites that the sidewalls and bottoms of the trenches in Figure 1 are *doped p-type* by any suitable process, ***not*** that the trench can be *filled* using any suitable process.

Figure 1 of Kinzer, which is the figure being described starting at column 2, line 12, is subsequently *filled* with a *dielectric layer* (col. 2, lines 32-34).

Contrary to the assertion in the Office Action, there is simply no teaching or suggestion in Kinzer to 'epitaxially deposit a material having a dopant of the second conducitivity in the trenches' – in fact, there is no teaching in Kinzer to fill the trenches with anything but *dielectric material.*

The structure of Figure 2 shown in Kinzer uses "SIPOS" to fill the trench – of course SIPOS is polycrystalline silicon with oxygen added to make it "semi-insulating". The semi-insulating properties of the film that is deposited in the trench are an integral part of the structure, as described at col. 1, lines 46-55. Again, Kinzer provides no teaching or suggestion to use *epitaxial silicon* to fill the trenches.

The Action acknowledges that Boden fails to teach or suggest 'epitaxially depositing in trenches a material having a dopant of the second conductivity type and diffusing at least a portion of said dopant from said trenches into portions of the epitaxial layer adjacent the trenches". Applicant respectfully submits that in the high-voltage MOS-gated device of Boden, the trenches are either completely filled with a "high resistivity, non-injecting material, preferably SIPOS", as described at column 3, lines 37-40 (Figure 1) of Boden, or, are lined with a high resistivity material such as silicon dioxide, before being filled with SIPOS or polysilicon (Applicant notes that while the high resistivity material is shown to be only on the sides of the trenches, the specification and Claim 3 describe the trenches as being "lined", which strongly suggests that the bottoms of the trenches are also covered with the high resistivity material.).

Again, there is simply no teaching or suggestion in Boden to deposit a layer epitaxially in the trench of Figure 1.

In addition, Applicant submits that it would not be possible to deposit an epitaxial layer with the sides and bottom of the trench coated with a layer of silicon dioxide.

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For all of the foregoing reasons, Applicant respectfully submits that independent Claim 14, and Claims 15 and 17-29 dependent thereon, are patentable over any permissible combination of the teachings of Boden and Kinzer.

CONCLUSION

In view of the foregoing, it is believed that the application is now in condition for allowance and early passage of this case to issue is respectfully requested. Should the Examiner be of the view that an interview would expedite consideration of this Amendment or of the application at large, request is made that the Examiner telephone the Applicant's undersigned attorney at (908) 518-7700 in order that any outstanding issues be resolved.

FEES

The Examiner is authorized to charge all fees due and owing in respect to this amendment to deposit account number 50-1047.

Respectfully submitted,

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